

Worksheet: Electrical Resistance Problems

1. What is the voltage drop across the tungsten filament in a 100-W light bulb? The resistance of the filament is $144\ \Omega$ and a current of $0.833\ \text{A}$ flows through it. (120 V)
2. An electric toaster is connected to a 120 V outlet. If the heating element in the toaster has a resistance of $14\ \Omega$, calculate the current flowing through it. (8.6 A)
3. The current required to operate an electric can opener is $1.5\ \text{A}$. What is its resistance if the supply voltage is 120 V? ($80\ \Omega$)
4. A 2.4 A bulb has a resistance of $16\ \Omega$. Calculate the voltage drop. (38.4 V)
5. A current of $12\ \text{A}$ flows through a red-hot stove element when the voltage drop across the element is 240 V. Calculate the resistance of the element. ($20\ \Omega$)
6. A 240 V water heater has a resistance of $12.8\ \Omega$. What is the current? (18.8 A)